EXHIBIT A
PRELIMINARY INVALIDITY CONTENTIONS – CHART OF PRIOR ART

Pursuant to the Court's scheduling order (Dkt. 25), Defendant Nine Energy Service, Inc. ("Nine") hereby provides the below chart setting forth where in each of the identified prior art references that each element of claims asserted by Plaintiff NCS Multistage, Inc. ("NCS"), are found. The chart below addresses asserted claims 14-15, 22-25, 27, 28-31, 36, 37-43, 46, 50-53, and 55-57 of U.S. Patent 10,465,445, including any independent claims from which the asserted claims depend.

In compiling these contentions, Nine has relied in part on NCS's Infringement Contentions dated July 10, 2020. In those contentions, NCS appears to assign overly broad claim constructions in an effort to assert infringement where none exists, and to accuse a product that does not infringe the asserted claims. Nine's Preliminary Invalidity Contentions take into account NCS's apparent constructions and may reflect aspects of the prior art that satisfy those constructions. Nine's assertion that a particular limitation is disclosed by a prior art reference, however, is not an admission that NCS's apparent claim interpretations are supportable or proper or that the claim limitations in question are definite or otherwise amenable to construction. Nine will argue for appropriate constructions of any term or claim of any patent at issue in this action on the schedule set by the Court. Moreover, Nine may seek to amend these invalidity contentions to account for any new interpretation or applications of the asserted claim, for example, if NCS changes its infringement theories or the Court issues a claim construction order.

Nine respectfully submits that each and every one of the asserted claims is invalid as anticipated or obvious in view of one or more of the following prior art references.

#	Claim Language	Citations to Prior Art
1.0	A float tool configured for use in a casing string for a wellbore containing a well fluid, the casing string having an internal diameter that defines a fluid passageway between an upper portion of the casing string and a lower portion of the casing string, the float tool comprising:	U.S. Patent 7,661,480 to Al-Anazi ("Al Anazi"), at Abstract, Figs. 1-4, 1:6-8, 1:12-19; 1:42-53; 2:3-8; 2:28-36; 2:46-63. Frank Allen, et al., *Extended-Reach Drilling: Breaking the 10-km Barrier* (BP Exploration Operation Co. Ltd. 1997) ("Allen 1997"), at 46-47. Int. Pub. No. WO2009116871A1 to Brandsdal et al. ("Brandsdal 2009"), at 5:23-6:10; Figs. 1, 2. U.S. Pat. No. 6,634,430 to Dawson et al. ("Dawson 2003"), at 4:10-41; Fig. 1. U.S. Pat. No. 4,512,491 to DeGood et al. ("DeGood 1985"), at 4:53-6:38. WO1991012451A1 to Degraaf et al. ("Degraaf 1991"), at 3:9-31. U.S. Pat. No. 2,756,828 to Deily et al. ("Deily 1956"), at 2:63-3-3; Fig. 1. U.S. Pat. No. 5,188,182 to Echolas et al. ("Echolas 1993"), at 2:65-3:41.

#	Claim Language	Citations to Prior Art
		U.S. Pat. No. 3,831,680 to Edwards et al. ("Edwards 1974"), at 3:27-4:21. U.S. Pat. 9,624,750 to Entchev, et al. ("Entchev 2017"), at 5:61-6:8, 12:38-13:3, 23:19-25, Fig.1, Fig. 3A, Fig. 3B, Fig. 10, Fig. 11. U.S. Pat. 8,820,437 to Ervin, et al. ("Ervin 2014"), at Abstract, 2:38-52, 3:11-30, 8:46-9:13, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9. U.S. Pat. 244,042 to Farrar ("Farrar 1881"), at 2:30, 2:48-52, Fig. 1, Fig. 2. U.S. 5,050,630 to Farwell & Mundt ("Farwell 1991"), at Abstract, 2:10-22, 3:48-58, 6:42-56, 7:50-8:12, Fig. 1. U.S. Pat. 5,924,696 to Frazier ("Frazier 1999"), at Abstract, 1:23-42, 2:11-24, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 6, Fig. 7. U.S. Pat. 7,287,596 to Frazier & Chapman ("Frazier 2007"), at 3:38-52, 4:62-5:5, 8:19-50, Fig. 1, Fig. 2. U.S. Pat. 7,708,066 to Frazier ("Frazier 2010"), at 3:53-4:3, 11:30-46, Fig. 1, Fig. 2, Fig. 6, Fig. 9. U.S. Pat. 8,813,848 to Frazier ("Frazier 2014"), at Abstract, 3:22-34, 4:22-49, Fig. 1, Fig. 3, Fig. 4, Fig. 7, Fig. 8, Fig. 9, Fig. 11, Fig. 12, Fig. 13. U.S. Pat. 9,194,209 to Frazier ("Frazier 2015"), at Abstract, 2:25-41, 10:11-23, 11:46-53, 12:57-64, Fig. 6, Fig. 7. U.S. Pat. 6,334,488 to Freiheit ("Freiheit 2002"), at Abstract, 3:31-44, 6:56-7:10, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 5, Fig. 6. WO 2003/052239 to Friend, et al. ("Friend 2003"), at Abstract, 1:9-17, 1:28-32, 2:13-18, 4:31-34, 9:4-6, 14, 16-17, Fig. 1, Fig. 3. U.S. Pat. 5,479,986 to Gano, et al. ("Gano 1996), at Abstract, 2:15-40, 3:4-9, 3:43-52, 6:46-57, 7:36-56, 8:27-55, 10:38-46, 11:5-15, 12:28-32, 12:40-64, Fig. 2A, Fig. 3. U.S. Pat. 5,685,372 to Gano ("Gano 1997"), at 2:33-36, Figs. 1-4. U.S. Pat. 7,963,342 to George ("George 2011"), at 4:63-65, 6:65-7:57, 7:64-12:11, 7:42-48, 7:60-8:45, 9:8-67, Fig. 1, Fig. 2, Fig. 3. U.S. Pat. 6,472,068 to Glass, et al. ("Glass 2002"), at Abstract, 1:9-2:57, 4:16-34, 6:14-18, 6:48-52, Fig. 3.

#	Claim Language	Citations to Prior Art
		U.S. Pat. 6,561,275 to Glass, et al. ("Glass 2003"), at Abstract, 6:23-57. U.S. Pat. 7,513,311 to Gramstad, et al. ("Gramstad 2009"), at Abstract, 1:5-9, 1:13-2:4, 2:8-14, 3:19-22, 3:30-34, 6:48-57, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. U.S. Pat. 7,963,340 to Gramstad, et al. ("Gramstad 2011"), at 7:59-62, 8:25-27, 9:1-16, 9:33-10:10. U.S. Pat. 4,664,184 to Grigar ("Grigar 1987"), at 1:58-66, 2:27-3:45, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. U.S. Pat. 7,624,796 to Hassel-Sorensen ("Hassel 2009), at Abstract, 2:60-61, 4:15-19, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. U.S. Pat. 7,117,946 to Herr ("Herr 2006"), at 12:12-22, 23:33-24:15, 25:52-56, Fig. 3, Fig. 4. U.S. Pat. 6,672,389 to Hinrichs ("Hinrichs 2004"), at Abstract, 1:11-15, 2:1-19, 3:15-24, 3:57-4:5, 6:35-46, 7:60-8:45, 9:8-55, Fig. 1, Fig. 2, Fig. 3, Fig. 4. U.S. Pat. 7,673,689 to Jackson, et al. ("Jackson 2010"), at Abstract, 1:60-65. U.S. Pat. 5,996,696 to Jeffree, et al. ("Jeffree 1999"), at Abstract, 1:26-32, 2:27-34, 3:15-30, 4:6-33, 4:39-45, 4:62-5:48, 6:20-51, Fig. 1, Fig. 2. U.S. Pat. 3,599,713 to Jenkins ("Jenkins 1971"), at 1:38-53, 2:63-3:30, 3:42-4:4, 4:11-31, Fig. 1. U.S. Pat. 7,789,162 to Keller, et al. ("Keller 2010"), at Abstract, 4:7-31, 6:3-20, 7:31-58, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. U.S. Pat. 7,455,116 to Lembcke, et al. ("Lembcke 2006"), at 3:62-65, Fig. 1, Fig. 2. U.S. Pat. 4,691,775 to Lustig & Ellis ("Lustig 1987"), at Abstract, 2:65-3:5. U.S. Pat. 2,565,731 to Luther ("Luther 1951"), at 1:50-2:5, Fig. 1, Fig. 2, Fig. 3. Oil and Gas Online, *Single MagnumDisk™* (June 21, 2011) ("Magnum Oil Tools 2011").

#	Claim Language	Citations to Prior Art
		Owen Oil Tools, *Magnum Ported Underbalance Sub* (Core Lab September 2012) ("Magnum Oil Tools 2012"), at 1-2. U.S. Pat. 5,117,915 to Muller, et al. ("Muller 1992"), at Abstract, 3:18-4:29, 5:59-6:4, 8:34-49, Figs. 3A-F, Fig. 7. U.S. Pat. 1,884,165 to Otis ("Otis 1932"), at 1:33-44, 2:65-77, Fig. 1, Fig. 2. Owen Oil Tools, *Surge Tool, Underbalance Sub* (Core Lab June 2002) ("Owen Oil Tools 2004"), at 1-3. Rogers et al., *Buoyancy Technology Used Effectively in Casing Running Operations to Extend Lateral Stepout*, SPE/IADC 148541 (Oct. 24, 2011) ("*Rogers 2011*"), at 2-3, 11; Fig. 13. U.S. No. 5,829,526 to Rogers, et al. ("Rogers 1998"), at 4:18-64; Figs. 2, 6-12; U.S. Pub. No. 2009/0020290 to Ross, et al. ("Ross 2009"), at ¶¶ [0002], [0010]; Figs. 1-3. Shaker et al., *Implementation of New Technologies for Oil and Gas Industry*, SPE 88738 (Oct. 2004) ("*Shaker 2004*"), at 1, 3, 5-6. Can. Pub. No. CA2670218 to Sherman, et al. ("Sherman 2010"), at ¶¶ [0001], [0033]. U.S. Pub. No. 4,553,559 to Short ("Short 1985"), at 2:13-40, 5:45-47. U.S. Pub. No. 2009/0056955 to Slack ("Slack 2009"), at ¶¶ [0002], [0004]. **U.S. Pub. No. to Snider et al. ("Snider 1996"), at 2:41-65, 6:21-63; Fig. 3. U.S. Pub. No. 2003/0168214 to Sollesnes ("Sollesnes 2003"), at ¶¶ [0001]- [0002]. U.S. Pat. No. 4,813,481 to Sproul et al. ("Sproul 1989"), at 1: 5-45, 2:50-55. U.S. Pat. No. 7,950,409 to Stokes et al. ("Stokes 2011"), at 1:8-31. U.S. Pat. No. 6,397,950 to Streich et al. ("Streich 2002"), at 5:20-43; Figs. 5-6. Can. Pat. No. 2469251 to Sundholm et al. ("Sundholm 2010"), at 1:3-25.

#	Claim Language	Citations to Prior Art
		TCO TDP-PO 500 x 300 Drawing, TCO AS (July 30, 2012) (Provided in PGR2020-00078) ("500x300 TDP-PO Plug"), at 1, 6. TCO TDP PoP 572 x 375 Drawing, TCO AS (Drawing No. 1018-12-001) (provided in PGR2020-00078) ("572x375 TDP-PO Plug"), at 1, 11. *TCO AS v. NCS Multistage Inc.*, PGR2020-00078, Paper 3 (Aug. 5, 2020) ("TCO PGR2020-00078"), at 49-51. U.S. Pat. No. 4658902 to Wesson et al. ("Wesson 1987"), at 1:6-33; 2:56-31.
1.1	a rupture disc assembly comprising (i) a tubular member having an upper end and a lower end, the upper and lower ends configured for connection in-line with the casing string and	Al-Anazi, at Abstract, Figs. 1-4, 1:6-8; 1:12-19; 1:36-54; 1:58-64; 2:3-22; 2:28-34; 2:46-63; 3:3-9. Allen 1997, at 46-47. Brandsdal 2009, at 5:23-6:10; Figs. 1, 2. DeGood 1985, at 4:53-6:38. Degraaf 1991, at 3:9-31. Deily 1956, at 2:63-3-3; Fig. 1. Echolas 1993, at 2:65-3:41. Edwards 1974, at 3:27-4:21. Entchev 2017, at 12:18-21, 12:38-13:3, 23:19-25, Fig.1, Fig. 3A, Fig. 3B, Fig. 10, Fig. 11. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 8:66-9:13, 9:33-43, Fig. 1, Fig. 2. Farrar 1881, at 2:16-40, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 2:10-22, 3:16-19, 3:48-58, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 6, Fig. 7. Frazier 2007, at 3:34-52, 6:16-23, 6:33-42, 8:19-50, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Frazier 2010, at 3:53-4:3, Fig. 1, Fig. 2, Fig. 5, Fig. 6, Fig. 9. Frazier 2014, at 3:27-34, 5:44-61, 6:66-7:11, 8:34-43, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig 10, Fig. 11, Fig. 12, Fig. 13.

#	Claim Language	Citations to Prior Art
		Frazier 2015, at Abstract, 2:25-41, 10:11-23, 11:46-53, 12:57-64, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 6. Friend 2003, at Abstract, 2:13-18, 4:31-34, 9:4-17, 14, 16-17, Fig. 1, Fig. 3, Fig. 4. Gano 1996, at Abstract, 1:5-8, 2:15-31; 3:4-9, 3:43-52, 6, 6:46-57, 8:27-31, 10:40-41, 11:10-11, 12:28-32, 12:40-64, Fig. 2A, Fig. 3. Gano 1997, at 2:47-55, 2:64-66, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass 2002, at Abstract, 1:9-12, 1:40-2:57, 2:59-3:14, 4:16-63, 6:14-18, 6:48-52, Fig. 3. Glass 2003, at Abstract, 6:23-57. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-67, 8:25-40, 9:1-16, 9:33-10:10. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at Abstract, 1:13-30, 2:60-3:6, 6:19-37, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-43, 23:33-24:15, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:41-54, 2:5-19, 3:15-30, 3:46-48, 4:6-31, 6:35-46, 7:60-8:45, 9:8-55, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 8. Jackson 2010, at Abstract, 1:65-2:34, 2:63-3:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:47-49, 2:35-38, 2:57-3:30, 4:6-33, 4:39-45, 4:63-5:33, 6:20-51, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Jenkins 1971, at 1:44-53, 1:63-70, 2:63-66, 3:42-4:4, 4:11-31, 4:38-43, Fig. 1. Keller 2011, at 7:40-42, 8:23-43, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lembcke 2008, at 3:65-4:4, Fig. 1, Fig. 2, Fig. 3, Fig. 5. Lustig 1987, at Abstract, 2:5-26, 3:49, 4:8-67, Fig. 1, Fig. 2. Luther 1951, at 1:50-2:5, Fig. 1, Fig. 2, Fig. 3.

#	Claim Language	Citations to Prior Art
		Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Mueller 1992, at 5:6-15, 8:34-49, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 7. Otis 1932, at 1:38-44, 2:65-77, Fig. 1, Fig. 2, Fig. 6. Owen Oil Tools 2004, at 1-3. Petrowsky 2013, at ¶ [0010]; Fig. 1. Phi 2008, at ¶¶ [0017], [0036], [0047]-[0050]; Figs. 2, 6-7. *Rogers 2011*, at 3-4, 11; Fig. 13. Ross 2009, at ¶ [0002]. Shaker 2004, at 1, 3, 5-6. Sherman 2010, at ¶ [0033]. Short 1985, at 5:47-56, 65-68. Slack 2009, at [0005]. Snider 1996, at 6:21-63; Fig. 3. Sollesnes 2003, at ¶ [0011]. Sproul 1989, at 2:50-55. Sundholm 2010, at 1:3-25. 500x300 TDO-PO Plug, at 1, 6. 572x375 TDO-PO Plug, at 1, 11. TCO PGR2020-00078, at 51-52. Wesson 1987, at 1:6-33; 2:56-31.
1.2	(ii) a rupture disc having a rupture burst pressure and in sealing engagement with a region of the tubular member within the upper and lower ends, expedited	Al-Anazi, at Abstract, Figs. 1-4, 1:6-8; 1:12-19; 1:36-54; 1:58-64; 2:3-22; 2:28-34; 2:46-63; 3:3-9. Allen 1997, at 46-47. Brandsdal 2009, at 7:7-31; Figs. 3, 4. DeGood 1985, at 4:53-6:38. Degraaf 1991, at 3:9-31. Deily 1956, at 2:63-3-3; Fig. 1. Edwards 1974, at 3:27-4:21. Entchev 2017, at 6:18-35, 13:10-26, 13:36-50, 13:57-14:2, 14:3-12, 16:54-17:18, 18:6-36, 19:15-19, 24:1-17, Fig. 3B.

#	Claim Language	Citations to Prior Art
		Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farrar 1881, at 2:16-34, 2:37-57, 2:53-73, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, 8:19-56, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2010, at 3:53-4:3, 5:51-63, 12:31-40, Fig. 1, Fig. 2, Fig. 3B, Fig. 4E, Fig. 5, Fig. 6, Fig. 9. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 8:60-67, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:7-17, 14-19, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8. Gano 1996, at 2:32-50, 3:10-16, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 7:3-14, 7:47-8:14, 8:18-26, 8:31-41, 8:62-9:19, 10:42-43, 11:12-15, 12:28-32, 12:36-37, 12:40-64, 8:4-6, 8:16-19, Fig. 2A, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:42-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass 2002, at Abstract, 1:9-12, 2:9-57, 2:59-4:2, 4:11-63, 6:4-6, 6:14-18, 6:33-40, 6:45-65, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5. Glass 2003, at Abstract, 6:23-57, 23:33-24:15, 24:23-27, 24:47-49. Gramstad 2009, at Abstract, 1:13-2:4, 2:15-24, 3:11-34, 3:54-4:3, 4:21-32, 5:6-6:30, 6:58-7:10, 7:27-32, 7:49-52, 8:24-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B.

#	Claim Language	Citations to Prior Art
		Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Grigar 1987, at 1:61-66, 3:36-45, 4:11-25, 6:5-7, 6:30-37, Fig. 2. Hassel 2009, at Abstract, 1:21-2:19, 2:64-3:6, 3:58-67, 4:21-67, 5:12-6:3, 6:19-40, 6:66-7:3, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:11-22, 1:55-67, 2:36-3:12, 3:15-30, 3:46-48, 4:25-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:31-56, 4:6-33, 4:39-45, 4:63-5:48, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Jenkins 1971, at 1:71-2:1, 2:55-69, 3:10-27, 4:5-10, 4:32-37, Fig. 1. Keller 2011, at 7:40-42, 8:23-43, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Luther 1951, at 2:6-25, 2:55-3:10, Fig. 1, Fig. 2, Fig. 3. Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Owen Oil Tools 2004, at 1-3. Petrowsky 2013, at ¶ [0011]. Phi 2008, at ¶¶ [0017], [0036], [0047-50]; Figs. 2, 6-7. Rogers 1998, at 8:52-9:16. *Rogers 2011*, at 3-4, 11; Fig. 13. Ross 2009, at ¶¶ [0002], [0011], [0019]. Shaker 2004, at 1, 3, 5-6. Sherman 2010, at ¶ [0033]. Slack 2009, at [0005]. Snider 1996, at 6:21-63; Fig. 3.

#	Claim Language	Citations to Prior Art
		Sollesnes 2003, at ¶ [0011]. Sundholm 2010, at 3:16-4-2. 500x300 TDO-PO Plug, at 1, 3, 5, 6, 9. 572x375 TDO-PO Plug, at 1, 3, 6, 10, 11. TCO PGR2020-00078, at 52-55. Wesson 1987, at 1:6-33; 2:56-31.
1.3	wherein the rupture disc is configured to rupture when exposed to a rupturing force greater than the rupture burst pressure and	Al-Anazi, at Abstract, Figs. 1-4, 1:6-8; 1:12-19; 1:36-54; 1:58-64; 2:3-22; 2:28-34; 2:46-63; 3:3-9; 3:17-4:63; 5:3-7:40. Allen 1997, at 46-47. Brandsdal 2009, at 7:7-31; Figs. 3, 4. DeGood 1985, at 4:53-6:38. Degraaf 1991, at 3:9-31. Deily 1956, at 2:63-3-3; Fig. 1. Edwards 1974, at 3:27-4:21. Entchev 2017, at 4:56-5:3, 6:18-35, 10:25-27, 18:6-36, 21:47-57, Fig. 10, Fig. 11. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:44-50, 9:59-67, Fig. 1, Fig. 2. Farrar 1881, at 2:16-34, 2:37-57, 2:53-73, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15. Frazier 2010, at 12:31-40. Frazier 2014, at 3:47-4:8, 5:6-31, 7:24-55, 8:54-10:5, Fig. 1, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 8:60-67, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at 5:21-6:55, 8:3-6, Fig. 2, Fig. 3, Fig. 4, Fig. 5. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15. Fig. 16.

#	Claim Language	Citations to Prior Art
		Gano 1996, at 2:32-50, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:62-9:19, 10:44-46, 11:29-31, 12:40-64, Fig. 2C, Fig. 3. Gano 1997, at 1:37-42, 4:32-5:7. George 2011, at 6:42-64, 7:48-57, 8:40-45, 9:16-21, 10:4-10:10. Glass 2002, at Abstract, 1:9-12, 2:9-57, 2:59-4:2, 4:44-51, 6:4-6, 6:14-18, 6:33-40, 6:45-65, Fig. 1, Fig. 2, Fig. 4, Fig. 5. Glass 2003, at Abstract, 6:23-57. Gramstad 2009, at Abstract, 1:13-2:4, 2:15-50, 4:21-32, 5:6-6:30, 6:58-7:10, 7:27-32, 8:4-6, 8:24-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-44, 9:10-17, 10:1-14. Grigar 1987, at 1:61-66, 3:36-45, 4:11-25, 6:5-7, 6:30-37, Fig. 2. Hassel 2009, at Abstract, 1:46-60, 4:21-67, 6:1-3, 6:66-7:3, Fig. 7. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 13:20-43, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:41-54, 2:36-48, 3:19-24, 3:19-30, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 2, Fig. 3, Fig. 4. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:42-49, 3:46-50, 4:6-33, 5:30-33, 6:15-19, 6:44-51. Jenkins 1971, at 2:55-62, 3:10-27, 4:5-10, 4:32-37. Lustig 1987, at Abstract, 1:52-59, 3:25-41, 3:53-55, 3:61-68. Luther 1951, 2:55-3:10. Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Owen Oil Tools 2004, at 1-3. Petrowsky 2013, at ¶ [0011]. Phi 2008, at ¶¶ [0017], [0036], [0047]-[0050]; Figs. 2, 6-7. *Rogers 2011*, at 3-4, 11; Fig. 13. Ross 2009, at ¶ [0013]. Shaker 2004, at 1, 3, 5-6.

#	Claim Language	Citations to Prior Art
		Sherman 2010, at ¶ [0033]. Slack 2009, at [0005]. Snider 1996, at 6:21-63; Fig. 3. Sollesnes 2003, at ¶¶ [0011], [0026]-[0030]; Fig. 3. Sproul 1989, at 2:50-55. Stokes 2011, at 2:3-54; Figs. 7-8. Streich 2002, at 5:20-43; Figs. 5-6. Sundholm 2010, at 3:16-4-2. 500x300 TDO-PO Plug, at 5, 9, 10. 572x375 TDO-PO Plug, at 3, 10, 12. TCO PGR2020-00078, at 55-58. Wesson 1987, at 1:6-33; 2:56-31.
1.4	the region of the tubular member where the rupture disc is attached has a larger internal diameter than the internal diameter of the casing string and is parallel to the internal diameter of the casing string.	Al-Anazi, at Figs. 1-2; 2:31-32; 2:50-3:26. Brandsdal 2009, at 7:7-31; Figs. 3, 4. Degraaf 1991, at 3:9-31. Entchev 2017, at 6:18-35, 10:25-27, 13:10-26, 14:3-12, 15:32-44, 16:54-17:18, 18:6-36, 22:3-11, Fig. 3B, Fig. 5A. Ervin 2014, at 9:33-50, Fig. 2, Fig. 9. Farrar 1881, at 2:37-40, Fig. 1. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 6, Fig. 7. Frazier 2007, at 7:50-61, 8:19-50, Fig. 3, Fig. 4. Frazier 2014, at Fig. 1, Fig. 4, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at 8:26-29, 11:46-64, Fig. 6, Fig. 7. Freiheit 2002, at Fig. 1B. Friend 2003, at 5:10-24; 17, Fig. 2, Fig. 3, Fig. 4, Fig. 15. Fig. 16. Gano 1996, at 2:32-50, 8:30-32, Fig. 2A-2C, Fig. 3. Gano 1997, at Figs. 1-4. Glass 2002, at 4:11-27, 4:40-44, Fig. 3.

#	Claim Language	Citations to Prior Art
		Gramstad 2009, at 1:33-36, Fig. 4A, Fig. 4B. Grigar 1987, at Fig. 2. Hassel 2009, at 3:61-64, 3:58-67, 6:41-47, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at 4:25-31, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at Fig. 4. Jenkins 1971, at 2:25-26, Fig. 1. Luther 1951, at 2:6-3, Fig. 1, Fig. 2, Fig. 3. Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Otis 1932, at 1:45-62, 2:65-77, Fig. 1, Fig. 2, Fig. 6. Owen Oil Tools 2004, at 1-3. Petrowsky 2013, at ¶ [0016]. Phi 2008, at ¶¶ [0047-50]; Figs. 4, 6. Ross 2009, at Figs. 1-2. Sherman 2010, at ¶ [0033]. Slack 2009, at [0005]. Snider 1996, at 6:21-63; Fig. 3. Sollesnes 2003, at [0026]; Fig. 3. Sproul 1989, at 2:50-55; 6:16-33; Figs. 1-3. 500x300 TDO-PO Plug, at 1, 5. 572x375 TDO-PO Plug, at 1, 3. TCO PGR2020-00078, at 58-60.
8.	The float tool recited in claim 1 wherein the rupture disc forms an upper seal of a sealed chamber.	Al-Anazi, at Fig. 2; 3:17-4:64. Allen 1997, at 46-47. Brandsdal 2009, at 7:7-31; Figs. 3, 4. DeGood 1985, at 4:53-6:38. Echolas 1993, at 2:65-3:41. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farrar 1881, at 2:16-34, 2:37-57, 2:53-73, Fig. 1, Fig. 2, Fig. 3.

#	Claim Language	Citations to Prior Art
		Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2010, at 9:27-34, 11:20-25, 12:8-11, Fig. 1, Fig. 2, Fig. 5, Fig. 6. Frazier 2015, at 11:56-60, 11:65-12:5, 12:19-28, 13:23-26, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at 1:30-2:2, 2:15-25, 6:29-7:4, 9:7-17, 14, 17, Fig. 3, Fig. 4. Gano 1996, at 2:32-50, 5:44-50, 7:48-56, 8:31-41, 10:42-43, 11:12-15, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Glass 2003, at Abstract, 6:23-57. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Grigar 1987, at 1:61-66, 3:36-45, 4:11-58, 6:5-7, 6:30-37, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 25:52-56, Fig. 3, Fig. 4. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:31-56, 4:39-45, Fig. 4, 4:63-5:48, 6:11-51, Fig. 5, Fig. 6. Keller 2011, at 7:40-42, 8:23-43, 10:24-25, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Luther 1951, at 1:1-9, Fig. 1, Fig. 2, Fig. 3.

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		Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Mueller 1992, at 3:36-51, 4:56-5:15, 8:34-49, Figs. 3A-F. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Owen Oil Tools 2004, at 1-3. Rogers 1998, at 8:52-9:16. Ross 2009, at ¶¶ [0013], [0018-19]. Slack 2009, at [0005], [0015]. Snider 1996, at 6:21-63; Fig. 3. Sollesnes 2003, at ¶¶ [0011], [0026]-[0030]; Fig. 3. Sproul 1989, at 2:50-55; 6:16-33; Figs. 1-3. Sundholm 2010, at 3:16-4-2. 500x300 TDO-PO Plug, at 3, 5. 572x375 TDO-PO Plug, at 3, 6.
14.	The float tool recited in claim 8 further comprising a lower seal on the sealed chamber	Al-Anazi, at Fig. 2; 3:17-4:64. Allen 1997, at 46-47. DeGood 1985, at 4:53-6:38. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2015, at 11:11:60-64, 12:6-18, 12:19-28, 13:23-26, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at 1:30-2:2, 2:15-25, 6:29-7:4, 9:7-17, 14, 17, Fig. 3, Fig. 4. Gano 1996, at 2:32-50, 5:44-50, 8:31-41, 10:42-43, 11:12-15, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3.

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		Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Glass 2003, at Abstract, 6:23-57. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Grigar 1987, at 1:61-66, 3:36-45, 4:11-58, 6:5-7, 6:30-37, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:41-54, 2:5-19, 3:15-30, 3:46-48, 4:6-31, 6:35-46, 7:60-8:45, 9:8-55, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 8. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:31-56, 4:39-45, 4:63-5:48, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Keller 2011, at 7:40-42, 8:23-43, 10:24-25, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Luther 1951, at 1:1-9, Fig. 1, Fig. 2, Fig. 3. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:36-51, 4:56-5:15, 8:34-49, Figs. 3A-F. Rogers 1998, at 4:42-5:25; 8:52-9:16. Ross 2009, at ¶¶ [0013], [0018]-[0019]. Snider 1996, at 6:21-63; Fig. 3. Sollesnes 2003, at ¶¶ [0011], [0026]-[0030]; Fig. 3. Sproul 1989, at 2:50-55; 6:16-33; Figs. 1-3. 500x300 TDO-PO Plug, at 5, 13. 572x375 TDO-PO Plug, at 6, 7.
15.	The float tool recited in claim 14 wherein the lower seal is within a float shoe.	Allen 1997, at 46-47. Ervin 2014, at 10:1-17, Fig. 1, Fig. 2, Fig. 3. Keller 2011, at 7:40-42, 8:23-43, 10:24-25, Fig. 1, Fig. 2, Fig. 3. Mueller 1992, at 3:36-51, 4:56-5:15, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F. Petrowsky 2013, at ¶ [0013].

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		Rogers 1998, at 4:42-64. Ross 2009, at ¶¶ [0034], [0037].
22.0	A method for installing casing in a wellbore containing a well fluid and having an upper vertical portion, a lower horizontal portion, and a bend portion connecting the upper and lower portions, the method comprising:	Al-Anazi, at Abstract, Fig. 1; 1:6-8, 1:12-19; 1:42-53; 1:58-2:23; 2:28-30; 2:46-64. Allen 1997, at 46-47. Dawson 2003, at 4:10-41; Fig. 1. Farwell 1991, at Abstract, 2:10-22, 3:48-58, 6:42-56, 7:50-8:12, Fig. 1. Frazier 1999, at Abstract, 1:23-42, 2:11-24, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 6, Fig. 7. Frazier 2007, at 3:38-52, 4:62-5:5, Fig. 1, Fig. 2. Frazier 2010, at 3:53-4:3, 4:37-43, 11:30-46, Fig. 1, Fig. 2, Fig. 6, Fig. 9. Frazier 2014, at Abstract, 3:22-34, 4:22-49, Fig. 1, Fig. 3, Fig. 4, Fig. 7, Fig. 8, Fig. 9, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 10:11-23, 11:46-53, 12:57-64, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 6:56-7:10, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Fig. 1, 3:5-3, 4:27-30. Gano 1996, at 7:36-46, 8:56-51, 11:35-44, 12:40-64, Fig. 2A, Fig. 3. Gano 1997, at 1:37-42, 2:41-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:63-65, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass 2002, at Abstract, 1:9-2:57, 4:16-34, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:5-9, 1:13-2:4, 2:8-14, 3:19-22, 3:30-34, 6:48-57, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-62, 8:25-27, 9:1-16, 9:33-10:10. Grigar 1987, at 1:58-66, 2:27-3:45, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hinrichs 2004, at Abstract, Abstract, 1:11-15, 1:30-33, 2:1-19, 3:15-24, 3:57-4:5, 6:35-46, 7:60-8:45, 9:8-55, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 2:63-3:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8.

#	Claim Language	Citations to Prior Art
		Jeffree 1999, at Abstract, 1:26-32, 2:27-34, 3:15-30, 4:6-33, 4:39-45, 4:62-5:48, 6:20-51, Fig. 1, Fig. 2. Keller 2011, at Abstract, 4:7-31, 6:3-20, 7:31-58, 9:25-43, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Luther 1951, at 1:1-9, 1:50-2:5, Fig. 1, Fig. 2, Fig. 3. Otis 1932, at 1:33-44, Fig. 1, Fig. 2. Mueller 1992, at 3:18-4:29, 4:56-5:15, 5:59-6:4, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Petrowsky 2013, at ¶¶ [0013], [0018]. Phi 2008, at ¶¶ [0013]-[0015]; Figs. 2, 6-7. Rogers 1998, at 4:18-38. *Rogers 2011*, at 3-4, 11; Fig. 13. Sherman 2010, at ¶¶ [0018], [0033].
22.1.a	running a casing string into the wellbore, the casing string having an internal diameter that defines a fluid passageway between an upper portion of the casing string and a lower portion of the casing string,	Al-Anazi, at Abstract, Fig. 1; 1:6-8, 1:12-19; 1:42-53; 1:58-2:23; 2:28-30; 2:46-64. Allen 1997, at 46-47. Brandsdal 2009, at 7:7-31; Figs. 3, 4. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 8:46-9:13, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9. Farrar 1881, at 2:16-40, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 2:10-22, 3:16-19, 3:48-58, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 6, Fig. 7. Frazier 2007, at 3:38-52, 4:62-5:5, Fig. 1, Fig. 2. Frazier 2010, at 3:53-4:3, 4:37-43, 11:30-46, Fig. 1, Fig. 2, Fig. 6, Fig. 9. Frazier 2014, at Abstract, 3:22-34, 4:22-49, Fig. 1, Fig. 3, Fig. 4, Fig. 7, Fig. 8, Fig. 9, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 10:11-23, 11:46-53, 12:57-64, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 6:56-7:10, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 5, Fig. 6.

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		Friend 2003, at Abstract, 1:9-17, 1:28-32, 2:13-18, 4:31-34, 9:4-6, 14, 16-17, Fig. 1, Fig. 3, Fig. 4. Gano 1996, at Abstract, 3:4-9, 3:43-52, 6:46-57, 7:36-46, 8:27-55, 9:32-43, 11:35-44, 12:40-64, Fig. 2A, Fig. 3, Fig. 4, Fig. 5. Gano 1997, at 1:37-42, 2:41-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:63-65, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass 2002, at Abstract, 1:9-2:57, 4:16-34, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:5-9, 1:13-2:4, 2:8-14, 3:19-22, 3:30-34, 6:48-57, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-62, 8:25-27, 9:1-16, 9:33-10:10. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, Fig. 1, Fig. 2. Hassel 2009, at Abstract, 2:60-61, 4:15-19, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, Abstract, 1:11-15, 1:30-33, 2:1-19, 3:15-24, 3:57-4:5, 6:35-46, 7:60-8:45, 9:8-55, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 2:63-3:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:26-32, 2:27-34, 3:15-30, 4:6-33, 4:39-45, 4:62-5:48, 6:20-51, Fig. 1, Fig. 2. Jenkins 1971, at 1:38-53, 2:63-3:30, 3:42-4:4, 4:11-31, Fig. 1. Keller 2011, at Abstract, 4:7-31, 6:3-20, 7:31-58, 9:25-43, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lustig 1987, at Abstract, 2:5-26, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Luther 1951, at 1:50-2:5, Fig. 1, Fig. 2, Fig. 3. Otis 1932, at 1:33-44, 2:65-77, Fig. 1, Fig. 2. Mueller 1992, at 3:18-4:29, 4:56-5:15, 5:59-6:4, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Phi 2008, at ¶ [0042]. Rogers 1998, at 4:39-64. *Rogers 2011*, at 3-4, 11; Fig. 13.

#	Claim Language	Citations to Prior Art
		Sherman 2010, at ¶ [0019]. Snider 1996, at 6:21-63; Fig. 3.
22.1.b	the upper and lower portions of the casing string separated by a chamber sealed on one end by a rupture disc assembly and on an opposing end by a seal, the chamber containing a first fluid having a first specific gravity	Al-Anazi, at Abstract, Fig. 1; 1:6-8, 1:12-19; 1:42-53; 1:58-2:23; 2:28-30; 2:46-64. Allen 1997, at 46-47. Brandsdal 2009, at 7:7-31; Figs. 3, 4. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farrar 1881, at 2:16-34, 2:37-57, 2:53-73, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, 8:19-56, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2010, at 3:53-4:3, 5:51-63, 12:31-40, Fig. 1, Fig. 2, Fig. 3B, Fig. 4E, Fig. 5, Fig. 6, Fig. 9. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:31-34, 6:29-7:4, 9:4-17, 14-17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 15. Fig. 16. Gano 1996, at 2:32-61, 3:10-16, 3:43-52, 4:6-35, 5:32-35, 5:38-50, 7:47-56, 8:18-26, 8:31-41, 9:16-19, 11:35-44, 12:40-64, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:11-15, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3.

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		Glass 2002, at Abstract, 1:9-2:57, 4:16-34, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-67, 8:25-40, 9:1-16, 9:33-10:10. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at Abstract, 1:13-30, 2:60-3:6, 6:19-37, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:11-22, 1:41-67, 2:36-3:12, 3:15-30, 3:46-48, 4:6-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jackson 2010, at Abstract, 1:60-2:34, 3:5-13, 4:23-35, 4:55-5:5, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:31-56, 4:6-33, 4:39-45, 4:63-5:48, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Jenkins 1971, at 1:71-2:1, 2:55-69, 3:10-27, 4:5-10, 4:32-37, Fig. 1. Keller 2010, at 7:40-42, 8:23-43, 9:44-47, 9:50-53, 10:24-25, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Luther 1951, at 2:6-25, 2:55-3:10, Fig. 1, Fig. 2, Fig. 3. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:18-4:29, 4:56-5:15, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Rogers 1998, at 4:55-5:42. *Rogers* 2011, at 3-4, 11; Fig. 13. Snider 1996, at 6:21-63; Fig. 3.
22.2.a	wherein the rupture disc assembly comprises (i) a tubular member having an upper end and a lower end, the upper and lower ends connected in-line with the casing string and	*See* Limitation 1.1.

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22.2.b	(ii) a rupture disc having a rupture burst pressure and in sealing engagement with a region of the tubular member within the upper and lower ends,	*See* Limitation 1.2.
22.2.c	wherein the rupture disc is configured to rupture when exposed to a rupturing force greater than the rupture burst pressure and	*See* Limitation 1.3.
22.2.d	the region of the tubular member where the rupture disc is attached has a larger internal diameter than the internal diameter of the casing string and is parallel to the internal diameter of the casing string; and	*See* Limitation 1.4.
22.3	floating at least a portion of the casing string containing the sealed chamber in the well fluid in the lower horizontal portion of the wellbore.	Allen 1997, at 46-47. Frazier 2007, at 4:44-50, 4:62-33, 6:5-15, 7:12-21, 7:32-42, 8:19-56, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2014, at Abstract, 3:22-34, 4:22-49, Fig. 1, Fig. 3, Fig. 4, Fig. 7, Fig. 8, Fig. 9, Fig. 11, Fig. 12, Fig. 13. Freiheit 2002, at Abstract, 3:31-44, 6:56-7:10, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 5, Fig. 6. Gano 1996, at Abstract, 3:4-9, 3:43-52, 7:36-55, 11:39-40, Fig. 2A, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. Keller 2010, at Abstract, 4:7-16, 7:31-49, 8:1-7, 9:27-33, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Mueller 1992, at 3:18-4:29, 4:56-5:15, 5:59-6:4, 8:11-23, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Rogers 1998, at 8:52-9:16.
23.	The method recited in claim 22 further comprising: filling the casing string above the rupture disc assembly with a second fluid having a second specific gravity higher than the first specific gravity.	Allen 1997, at 46-47. Ervin 2014, at 3:52-4:5, Fig. 1, Fig. 2. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2.

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		Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, 8:19-56, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:31-34, 6:29-7:4, 9:4-17, 14-17. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, 12:40-64, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:55-67, 2:36-3:12, 3:15-30, 3:46-48, 4:25-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7.

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		Jeffree 1999, at 1:57-63, 3:26-34, 4:62-6:2. Keller 2010, at 7:40-45, 8:1-7, 9:27-33, 9:44-47, 9:50-53, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992 at 6:5-11. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
24.	The method recited in claim 23 wherein the first specific gravity is less than a specific gravity of the well fluid.	Allen 1997, at 46-47. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at 4:45-51, 7:8-16. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:32-34, 6:29-7:4, 9:4-17, 14-17. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37.

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		Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:55-67, 2:36-3:12, 3:15-30, 3:46-48, 4:25-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at 1:57-63, 3:26-34, 4:62-6:2. Keller 2010, at 2:14-34, 3:47-49, 7:40-45, 8:1-7, 9:27-33, 9:44-47, 9:50-53, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 6:5-45, 8:34-49. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
25.	The method recited in claim 23 wherein the first fluid is air.	Allen 1997, at 46-47. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at 4:45-51, 7:12-16. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:32-34, 6:29-7:4, 9:4-17, 14-17. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, Fig. 2A-C, Fig. 3. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37.

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		Hinrichs 2004, at Abstract, 1:11-22, 1:55-67, 2:36-3:12, 3:15-30, 3:46-48, 4:25-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at 1:57-63, 3:26-34, 4:62-6:2. Keller 2010, at 2:14-34, 3:47-49, 8:1-7, Fig. 1, Fig. 2A, Fig. 2B. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:36-51, 5:6-15, 8:34-49. Rogers 1998, at 1. Rogers 1998, at 8:52-9:2. Snider 1996, at 6:21-63; Fig. 3.
27.	The method recited in claim 22 further comprising applying a rupturing force to the rupture disc to rupture the rupture disc.	Allen 1997, at 46-47. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19. Farrar 1881, at 2:16-34, 2:37-57, 2:53-73, Fig. 1, Fig. 2, Fig. 3. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 1999, at Abstract, 1:23-42, 2:11-37, 2:48-64, 3:40-47, 3:65-4:15, 4:30-5:17, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2007, at 4:44-50, 6:5-15, 7:12-21, 7:32-42, 8:19-56, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7. Frazier 2010, at 12:31-40. Frazier 2014, at 3:47-4:8, 5:6-31, 7:24-55, 8:54-10:5, Fig. 1, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 8:60-67, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Gano 1996, at 2:32-50, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:62-9:19, 11:35-44, 12:40-64, Fig. 2C, Fig. 3. Gano 1997, at 1:37-42, 4:32-5:7.

#	Claim Language	Citations to Prior Art
		George 2011, at 6:42-64, 7:48-57, 8:40-45, 9:16-21. Glass 2002, at Abstract, 1:9-12, 2:9-57, 2:59-4:2, 4:44-51, 6:4-6, 6:14-18, 6:33-40, 6:45-65, Fig. 1, Fig. 2, Fig. 4, Fig. 5. Gramstad 2009, at Abstract, 1:13-2:4, 2:15-50, 4:21-32, 5:6-6:30, 6:58-7:10, 7:27-32, 8:4-6, 8:24-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-44, 9:10-17, 10:1-14. Grigar 1987, at 1:61-66, 3:36-45, 4:11-25, 6:5-7, 6:30-37, Fig. 2. Hassel 2009, at Abstract, 1:21-2:19, 2:64-3:6, 3:58-67, 4:21-67, 5:12-6:3, 6:19-40, 6:66-7:3, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Herr 2006, at 12:12-22, 12:35-42, 12:59-66, 25:52-56, Fig. 3, Fig. 4. Hinrichs 2004, at Abstract, 1:41-54, 2:36-48, 3:19-24, 3:19-30, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 2, Fig. 3, Fig. 4. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:42-49, 3:46-50, 4:6-33, 5:30-33, 6:15-19, 6:44-51. Jenkins 1971, at 2:55-62, 3:10-27, 4:5-10, 4:32-37. Lustig 1987, at Abstract, 1:52-59, 3:25-41. Luther 1951, at 2:6-25, 2:55-3:10, Fig. 1, Fig. 2, Fig. 3. Magnum Oil Tools 2011. Magnum Oil Tools 2012, at 1-2. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6 . Owen Oil Tools 2004, at 1-3. Petrowsky 2013, at ¶ [0011]. Rogers 1998, at 6:18-42. Snider 1996, at 6:21-63; Fig. 3.

#	Claim Language	Citations to Prior Art
28.0	A float tool configured for use in positioning a casing string in a wellbore containing a well fluid, the casing string having an internal diameter that defines a fluid passageway between an upper portion of the casing string and a lower portion of the casing string, the float tool comprising:	*See* Limitation 1.0.
28.1.a	a rupture disc assembly comprising (i) a tubular member having an upper end and a lower end, the upper and lower ends configured for connection in-line with the casing string and	*See* Limitation 1.1
28.1.b	(ii) a rupture disc having a rupture burst pressure and in sealing engagement with a region of the tubular member within the upper and lower ends	*See* Limitation 1.2.
28.2.a	wherein the rupture disc is configured to disengage from sealing engagement when exposed to a pressure greater than a hydraulic pressure in the casing string after the casing string has been positioned in the wellbore	Al-Anazi, at Abstract, Figs. 1-4, 1:6-8; 1:12-19; 1:36-54; 1:58-64; 2:3-22; 2:28-34; 2:46-63; 3:3-9; 3:17-4:63; 5:3-7:40. Entchev 2017, at 6:18-35, 10:37-45, 13:57-14:22, 16:54-17:18, 18:6-36, 19:11-22, 24:1-23, Fig. 3B, Fig. 4A, Fig. 4B. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 2010, at 11:25-28, 12:22-30, Fig. 1, Fig. 2, Fig. 5, Fig. 6. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 8:60-69, 13:39-49, Fig. 6, Fig. 7. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15, Fig. 16.

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		Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Gano 1996, at 2:32-50, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:15-35, 7:57-8:14, 8:62-9:19, 12:40-64, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 4:32-5:7. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:42-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Gramstad 2009, at 1:28-52, 2:19-24, 2:30-35, 2:43-50, 4:4-5:20, 6:31-47, 7:6-26, 7:53-8:2, 8:7-15, 8:20-31, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-7, 8:11-17, 8:25-63, 9:1-25, 10:1-14, 10:20-34, 10:31-33. Hassel 2009, at Abstract, 1:21-2:19, 2:64-3:6, 3:58-67, 4:21-67, 5:12-6:3, 6:19-40, 6:66-7:3, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:41-54, 2:36-48, 3:19-24, 3:19-30, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, 5:6-25, 5:66-6:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:42-49, 3:46-50, 4:6-33, 5:30-33, 6:15-19, 6:44-51. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 7:65-8:10, 8:50-9:3, 9:31-55, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 5. Ross 2009, at ¶¶ [0014]-[0015], [0018], [0020]. Snider 1996, at 6:21-63; Fig. 3. 500x300 TDO-PO Plug, at 9, 10. 572x375 TDO-PO Plug, at 10, 12. TCO PGR2020-00078, at 61-63.

#	Claim Language	Citations to Prior Art
28.2.b	and the region of the tubular member where the rupture disc is attached has a larger internal diameter than the internal diameter of the casing string and is parallel to the internal diameter of the casing string.	*See* Limitation 1.4
29.a	The float tool recited in claim 28 wherein the rupture disc is further configured to rupture when exposed to a rupturing force greater than the rupture burst pressure and	*See* Limitation 1.3.
29.b	the pressure greater than the hydraulic pressure is less than the rupture burst pressure.	Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Frazier 2010, at 11:25-28, 12:22-30, Fig. 1, Fig. 2, Fig. 5, Fig. 6. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 8:60-67, 13:39-49, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15, Fig. 16. Gano 1996, at 2:32-50, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:15-35, 7:57-8:14, 8:62-9:19, 12:40-64, Fig. 2A-C, Fig. 3 Gano 1997, at 1:37-42, 4:32-5:7. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:42-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Gramstad 2009, at 1:28-52, 2:19-24, 2:30-35, 2:43-50, 4:4-5:20, 6:31-47, 7:6-26, 7:53-8:2, 8:7-15, 8:20-31, 8:41-53. Gramstad 2011, at 7:59-7, 8:11-17, 8:25-63, 9:1-25, 10:1-14, 10:20-34, 10:31-33. Hassel 2009, at 4:42-44. Hinrichs 2004, at Abstract, 1:41-54, 2:36-48, 3:19-24, 3:19-30, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 2, Fig. 3, Fig. 4.

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		Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, 5:6-25, 5:66-6:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:42-49, 3:46-50, 4:6-33, 5:30-33, 6:15-19, 6:44-51. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 7:65-8:10, 8:50-9:3, 9:31-55, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 5. Stokes 2011, at 2:3-54; Figs. 7-8. TCO PGR2020-00078, at 64-65.
30.	The float tool recited in claim 28 wherein the wellbore has an upper, substantially vertical portion, a lower, substantially horizontal portion, and a bend portion connecting the upper and lower portions and the float tool is configured for use in the casing string such that, when the casing string is positioned in the wellbore for a cementing operation, the rupture disc is located in the upper, substantially vertical portion of the wellbore.	Al-Anazi, at Abstract, Fig. 1.; 2:59-3:14. Allen 1997, at 46-47. Frazier 2010, at 3:53-4:3, 4:37-43, 11:30-46, Fig. 9. Friend 2003, at 1:28-2:2, 3:5-3, 4:27-30, Fig. 1. Gano 1996, at Abstract, 1:10-67, 2:15-18, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:42-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass 2002, at Abstract, 1:9-2:57, 4:16-34, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:5-9, 1:13-2:4, 2:8-14, 3:19-22, 3:30-34, 6:48-57, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Keller 2010, at Abstract, 7:31-49, 8:1-14, Fig. 2A, Fig. 2B. Mueller 1992, at 2:53-3:47, 4:4-30, 4:57-5:9, 7:28-42, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Sherman 2010, at ¶¶ [0018], [0019]. Sproul 1989, at 1:11-23, 2:50-55, 6:16-33; Figs. 1-3.
31.	The float tool recited in claim 30 wherein the float tool is configured for use in the casing string such that, when the casing string is positioned in the wellbore for a cementing operation, the rupture disc is located proximate the bend portion of the wellbore.	Al-Anazi, at Abstract, Fig. 1.; 2:59-3:14. Allen 1997, at 46-47. Frazier 2010, at 3:53-4:3, 4:37-43, 11:30-46, Fig. 9. Freiheit 2002, at Abstract, 3:31-44, 6:56-7:10, 7:45-8:6, Fig. 1B, Fig. 4, Fig. 5, Fig. 6. George 2011, at 2:1-17, Fig. 1.

#	Claim Language	Citations to Prior Art
		Gramstad 2009, at Abstract, 1:5-9, 1:13-2:4, 2:8-14, 3:19-22, 3:30-34, 6:48-57, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Keller 2010, at Abstract, 7:31-49, 8:1-14, Fig. 2A, Fig. 2B. Mueller 1992, at 3:18-4:29, 4:56-5:15, 5:59-6:4, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Sherman 2010, at ¶ [0020]. Sproul 1989, at 1:11-23, 2:50-55, 6:16-33; Figs. 1-3.
36.	The float tool recited in claim 28 wherein the rupture disc forms an upper seal of a sealed chamber.	*See* Limitation 8.
37.	The float tool recited in claim 36 wherein the sealed chamber is configured for releasably containing a fluid having a lower specific gravity than that of the well fluid.	Allen 1997, at 46-47. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Frazier 2010, at 11:25-28, 12:22-30, Fig. 1, Fig. 2, Fig. 5, Fig. 6. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15. Fig. 16. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, 12:40-64, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3.

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		Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:41-67, 2:36-3:12, 3:15-30, 3:46-48, 4:6-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, 5:6-25, 5:66-6:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:26-56, 4:6-33, 4:39-45, 4:62-6:2, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:18-4:29, 4:56-5:15, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
38.	The float tool recited in claim 37 wherein the fluid having a lower specific gravity than that of the well fluid is released upon disengagement of the rupture disc.	Allen 1997, at 46-47. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 2010, at 11:25-28, 12:22-30, Fig. 1, Fig. 2, Fig. 5, Fig. 6 Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:8-16, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6.

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		Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15, Fig. 16. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at Abstract, 1:21-2:19, 2:64-3:6, 3:58-67, 4:21-67, 5:12-6:3, 6:19-40, 6:66-7:3, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:41-67, 2:36-3:12, 3:15-30, 3:46-48, 4:6-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, 5:6-25, 5:66-6:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:26-56, 4:6-33, 4:39-45, 4:62-6:2, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:18-4:29, 4:56-5:15, 8:34-9:55, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
39.	The float tool recited in claim 36 wherein the sealed chamber is filled with a fluid having a lower specific gravity than that of the well fluid.	Allen 1997, at 46-47. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11.

#	Claim Language	Citations to Prior Art
		Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-51, 5:21-6:55, 7:8-16, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:32-34, 6:29-7:4, 9:4-17, 14-17. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Grigar 1987, at 1:58-66, 3:8-24, 4:11-41, 5:47-6:19, Fig. 1, Fig. 2. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:41-67, 2:36-3:12, 3:15-30, 3:46-48, 4:6-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:26-56, 4:6-33, 4:39-45, 4:62-6:2, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Keller 2010, at 3:4-44, 7:40-49, 7:59-8:14, 10:41-44, Fig. 1, Fig. 2A, Fig. 2B, Fig. 3.

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		Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:18-4:29, 4:56-5:15, 8:34-49, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 4. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
40.	The float tool recited in claim 39 wherein the fluid in the sealed chamber is a gas.	Allen 1997, at 46-47 Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at 4:45-51. Friend 2003, at Abstract, 1:14-17, 1:32-2:2, 2:13-25, 4:32-34, 6:29-7:4, 9:4-17, 14-17. Gano 1996, at 2:32-61, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:57-8:14, 8:56-9:19, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 2:33-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Glass, at 4:44-63, 6:14-18, 6:48-52, Fig. 3. Gramstad 2009, at Abstract, 1:13-2:4, 2:8-24, 3:11-53, 6:48-57, 7:42-48, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B. Gramstad 2011, at 7:59-8:7, 8:18-24, 8:28-54, 8:64-9:17, 9:26-10:19, 10:34-37. Hassel 2009, at 4:15-19, 5:12-6:3, 6:19-37, 6:55-60, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:11-22, 1:41-67, 2:36-3:12, 3:15-30, 3:46-48, 4:6-41, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 1, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at 4:23-35, 4:55-5:5, Fig. 2, Fig. 3, Fig. 6, Fig. 7. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:26-56, 4:6-33, 4:39-45, 4:62-6:2, 6:11-51, Fig. 4, Fig. 5, Fig. 6.

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		Keller 2010, at 2:14-34, 3:47-49, 8:1-7, Fig. 1, Fig. 2A, Fig. 2B. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 3:36-51, 5:6-15, 8:34-49. Rogers 1998, at 8:52-9:16. Snider 1996, at 6:21-63; Fig. 3.
41.	The float tool recited in claim 40 wherein the gas is air.	*See* Limitation 25.
42.	The float tool recited in claim 36 further comprising a lower seal on the sealed chamber.	*See* Limitation 14.
43.	The float tool recited in claim 42 wherein the lower seal is within a float shoe.	*See* Limitation 15.
46.	The float tool recited in claim 36 wherein the sealed chamber is sized such that a portion of the sealed chamber is buoyant in the well fluid.	Allen 1997, at 46-47. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Gano 1996, at Abstract, 3:4-9, 3:43-52, 7:36-55, 11:39-40, Fig. 2A, Fig. 2B, Fig. 3. Gano 1997, at 1:37-42, 2:41-48, 3:18-26, 3:32-40, 4:32-5:7, Figs. 1-4. Grigar 1987, at 1:58-2:2, 3:46-50, 5:6-30, Fig. 1, Fig. 2. Keller 2010, at Abstract, 2:35-3:28, 6:3-20, 7:31-49. Mueller 1992, at 3:46-51, 5:25-45, 5:59-6:4, 8:34-49, Figs. 3A-F. Rogers 1998, at 4:2-5.
50.0	A method for installing casing in a wellbore containing a well fluid and having an upper vertical portion, a lower horizontal portion, and a bend portion connecting the upper and lower portions, the method comprising:	*See* Limitation 22.0.
50.1.a	running a casing string into the wellbore, the casing string having an internal diameter that defines a fluid passageway between an upper portion of the casing string and a lower portion of the casing string,	*See* Limitation 22.1.a.

#	Claim Language	Citations to Prior Art
50.1.b	the upper and lower portions of the casing string separated by a chamber sealed on one end by a rupture disc assembly and on an opposing end by a seal, the chamber containing a first fluid having a first specific gravity	*See* Limitation 22.1.b.
50.2.a	wherein the rupture disc assembly comprises (i) a tubular member having an upper end and a lower end, the upper and lower ends connected in-line with the casing string and	*See* Limitation 1.1.
50.2.b	(ii) a rupture disc having a rupture burst pressure and in sealing engagement with a region of the tubular member within the upper and lower ends,	*See* Limitation 1.2.
50.3.a	wherein the rupture disc is configured to disengage from sealing engagement when exposed to a pressure greater than a hydraulic pressure in the casing string after the casing string has been positioned in the wellbore and	*See* Limitation 28.2.a.
50.3.b	the region of the tubular member where the rupture disc is attached has a larger internal diameter than the internal diameter of the casing string and is parallel to the internal diameter of the casing string; and	*See* Limitation 1.4
50.4	floating at least a portion of the casing string containing the sealed chamber in the well fluid in the lower horizontal portion of the wellbore.	*See* Limitation 22.3.
51.	The method recited in claim 50 further comprising: filling the casing string above the rupture disc assembly with a second fluid	*See* Limitation 23.

#	Claim Language	Citations to Prior Art
	having a second specific gravity higher than the first specific gravity.	
52.	The method recited in claim 51 wherein the first specific gravity is less than a specific gravity of the well fluid.	*See* Limitation 24.
53.	The method recited in claim 51 wherein the first fluid is air.	*See* Limitation 25.
55.	The method recited in claim 50 further comprising applying a pressure within the casing string greater than the hydraulic pressure in the casing string to disengage the rupture disc from sealing engagement	Al-Anazi, at Abstract, Figs. 1-4, 1:6-8; 1:12-19; 1:36-54; 1:58-64; 2:3-22; 2:28-34; 2:46-63; 3:3-9; 3:17-4:63; 5:3-7:40. Brandsdal 2009, at 7:7-31; Figs. 3, 4. Ervin 2014, at Abstract, 2:38-52, 3:11-30, 4:6-12, 9:33-67, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 9, Fig. 10, Fig. 11. Farwell 1991, at Abstract, 1:13-23, 2:10-22, 3:19-44, 3:59-67, 6:42-56, 7:50-8:12, Fig. 1, Fig. 2. Frazier 2010, at 11:25-28, 12:22-30, Fig. 1, Fig. 2, Fig. 5, Fig. 6. Frazier 2014, at 3:27-4:21, 4:50-5:7, 5:35-38, 5:44-6:37, 6:66-7:55, 7:56-8:19, 8:38-10:5, Fig. 1, Fig. 3, Fig. 4, Fig. 6, Fig. 7, Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13. Frazier 2015, at Abstract, 2:25-41, 4:28-34, 8:60-67, 11:46-12:28, 12:57-13:14, 13:29-49, Fig. 2A, Fig. 2B, Fig. 3, Fig. 6, Fig. 7. Freiheit 2002, at Abstract, 3:31-44, 3:50-59, 4:11-50, 5:21-6:55, 7:17-26, 7:45-8:38, Fig. 1B, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6. Friend 2003, at Abstract, 1:30-2:2, 2:15-25, 6:29-7:4, 9:15-17, 14-19, Fig. 2, Fig. 3, Fig. 4, Fig. 15, Fig. 16. Gano 1996, at 2:32-50, 2:61-3:3, 3:11-14, 3:43-52, 4:6-35, 5:32-35, 5:38-42, 5:44-50, 7:15-35, 7:57-8:14, 8:62-9:19, 12:40-64, Fig. 2A-C, Fig. 3. Gano 1997, at 1:37-42, 4:32-5:7. George 2011, at 4:6-18, 4:30-44, 5:9-19, 6:65-7:57, 7:64-12:11, Fig. 1, Fig. 2, Fig. 3. Gramstad 2009, at 1:28-52, 2:19-24, 2:30-35, 2:43-50, 4:4-5:20, 6:31-47, 7:6-26, 7:53-8:2, 8:7-15, 8:20-31, 8:41-53, Fig. 1A, Fig. 1B, Fig. 2A, Fig. 2B, Fig. 3, Fig. 4A, Fig. 4B.

#	Claim Language	Citations to Prior Art
		Gramstad 2011, at 7:59-7, 8:11-17, 8:25-63, 9:1-25, 10:1-14, 10:20-34, 10:31-33. Hassel 2009, at Abstract, 1:21-2:19, 2:64-3:6, 3:58-67, 4:21-67, 5:12-6:3, 6:19-40, 6:66-7:3, 7:16-8:3, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6A, Fig. 6B, Fig. 6C. Hinrichs 2004, at Abstract, 1:41-54, 2:36-48, 3:19-24, 3:19-30, 6:16-7:25, 7:60-8:45, 9:8-55, 10:42-53, Fig. 2, Fig. 3, Fig. 4. Jackson 2010, at Abstract, 1:65-2:34, 3:5-4:6, 5:6-25, 5:66-6:2, Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Fig. 6, Fig. 7, Fig. 8. Jeffree 1999, at Abstract, 1:49-63, 2:1-6, 2:35-56, 3:26-56, 4:6-33, 4:39-45, 4:62-6:2, 6:11-51, Fig. 4, Fig. 5, Fig. 6. Lustig 1987, at Abstract, 1:52-59, 2:47-64, 3:25-41, 3:53-55, 3:61-68, 4:48-67, Fig. 1, Fig. 2. Otis 1932, at 1:45-102, 2:14-77, Fig. 1, Fig. 2, Fig. 6. Mueller 1992, at 7:65-8:10, 8:50-9:3, 9:31-55, Fig. 1, Fig. 2, Figs. 3A-F, Fig. 5. Ross 2009, at ¶¶ [0018], [0020].
56.a.	The method recited in claim 55 wherein the rupture disc is further configured to rupture when exposed to a rupturing force greater than the rupture burst pressure and	*See* Limitation 29.a.
56.b	the pressure greater than the hydraulic pressure is less than the rupture burst pressure	*See* Limitation 29.b.
57.	The method recited in claim 56 further comprising applying a rupturing force to rupture the rupture disc.	*See* Limitation 27.